MDOT VII Vision and Test Bed Plan

States and OEM's Working Together

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MDOT VII Vision

- Partner
- Lead
- Lay a public foundation
- Develop new industries
- Improve transportation system safety
- Improve operational performance

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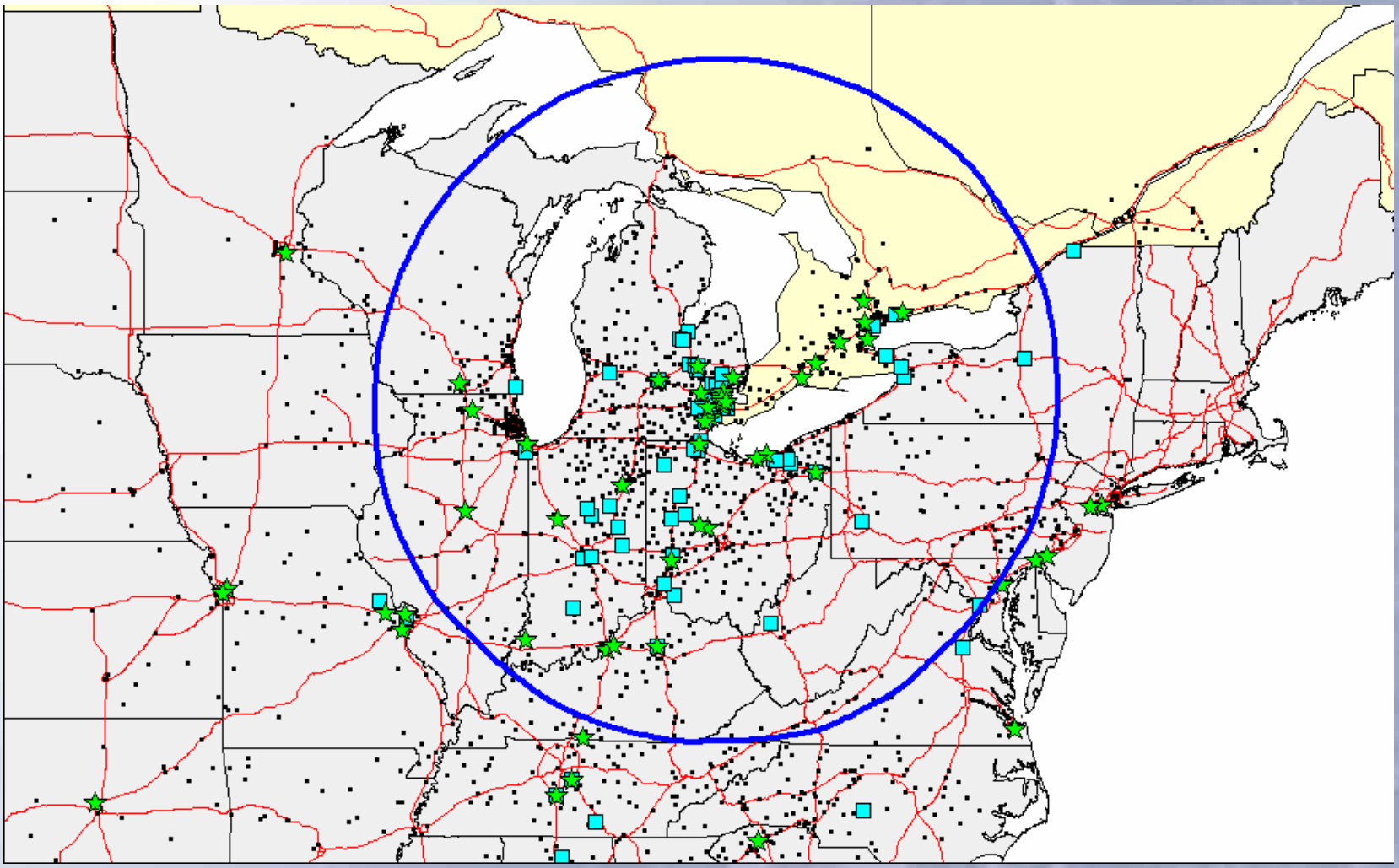
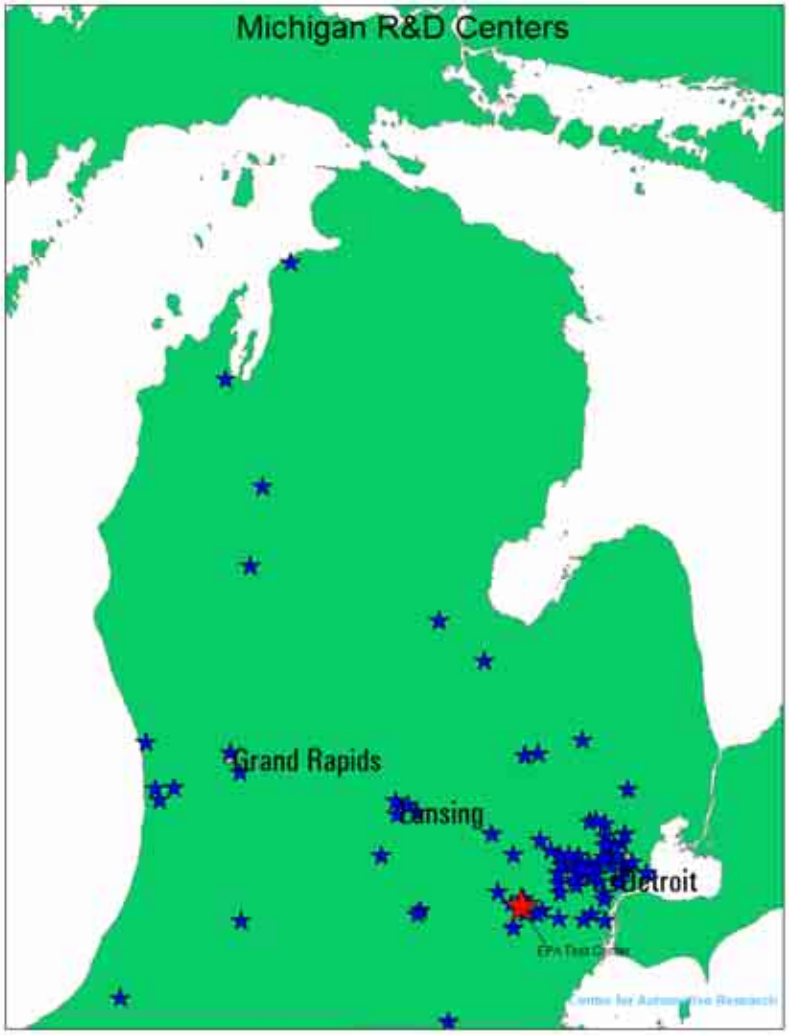
450 Miles: The Hub of Auto Industry



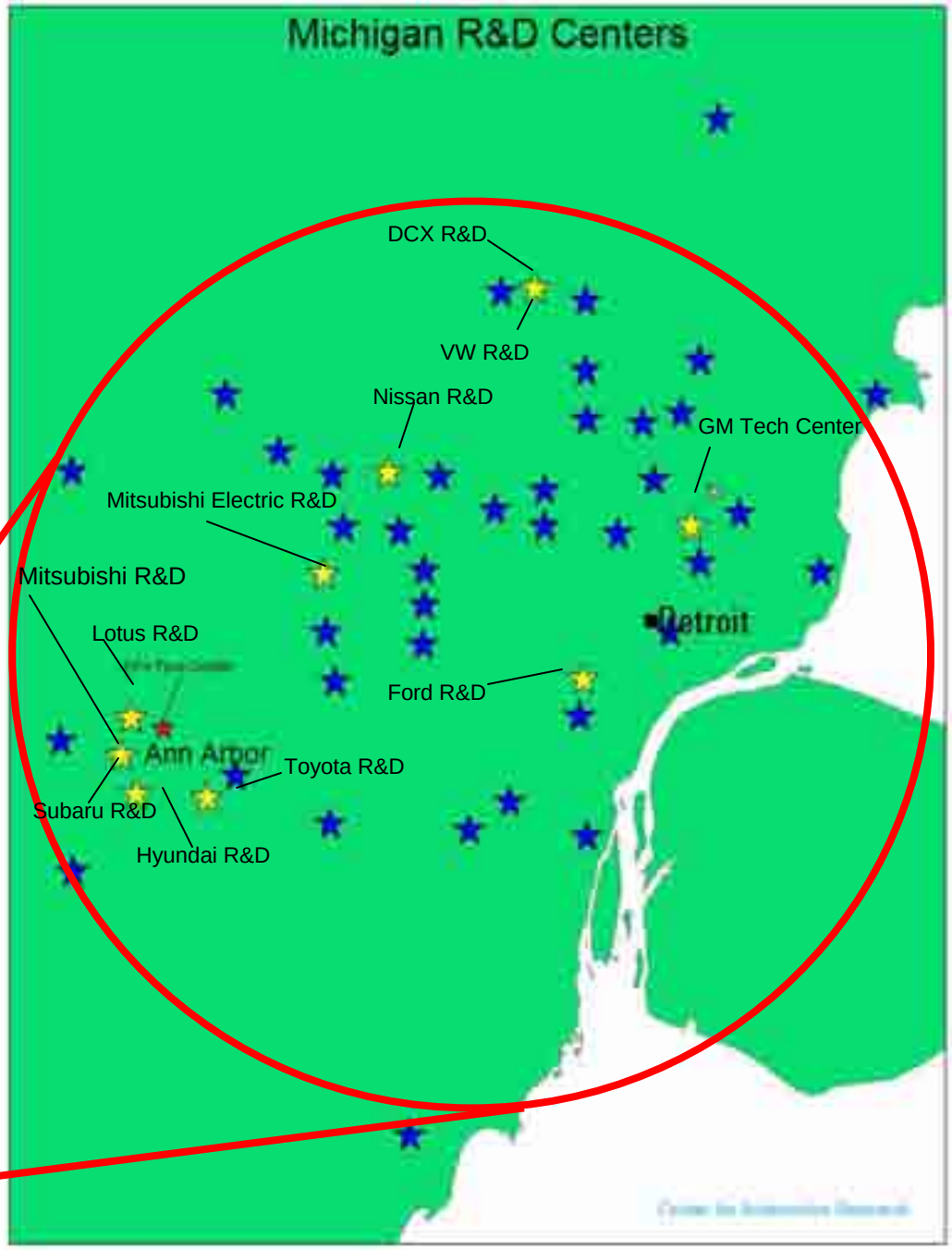
MICHIGAN AUTOMOTIVE R&D FACILITIES

- **178 Facilities**
- **$10.3 Billion spent in-state on automotive-related R&D (2002 - NSF)**




National Vehicle and Fuel Emissions Laboratory

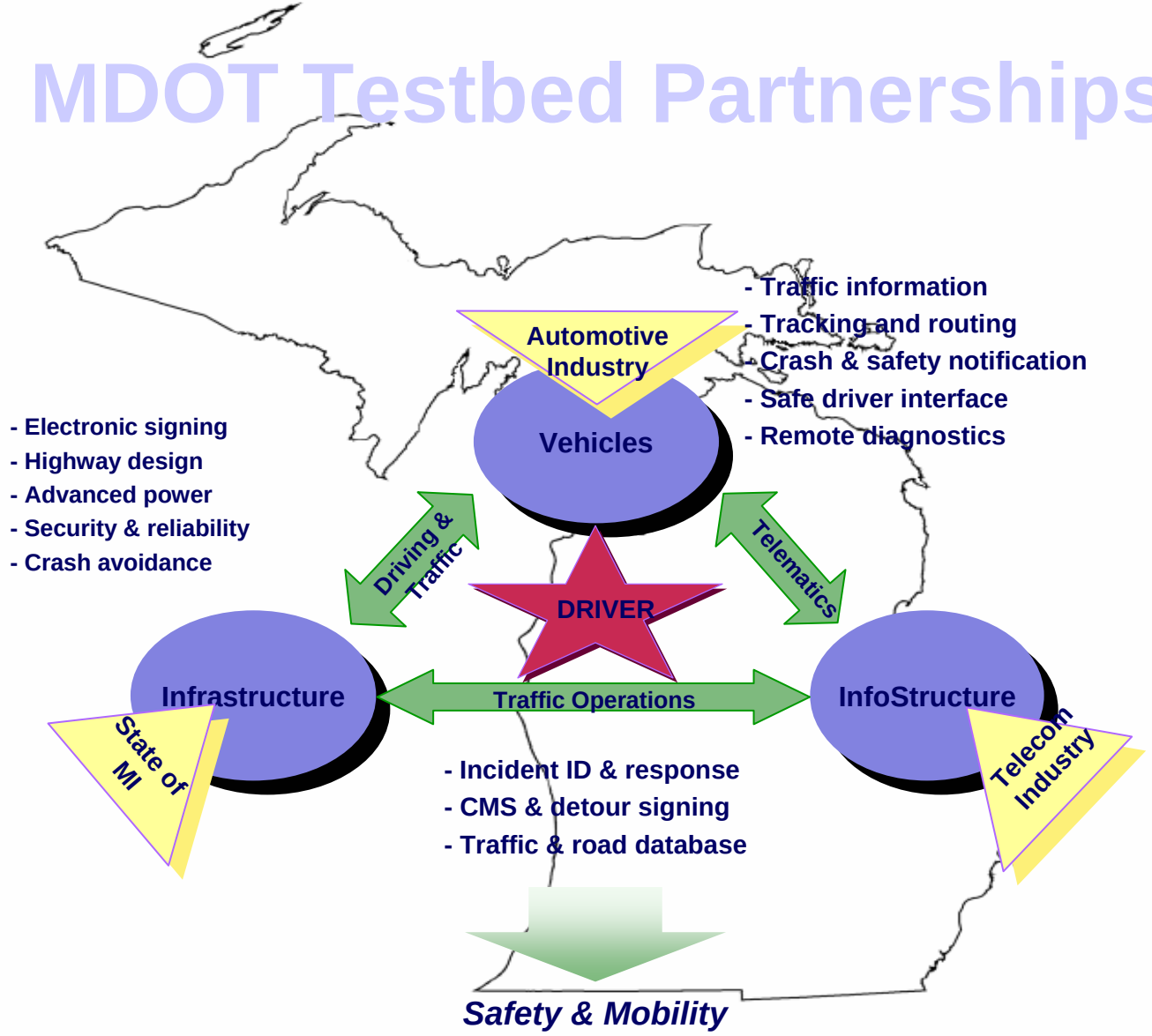

Michigan R&D Centers


Michigan R&D Centers
DCX R&D
VW R&D
Nissan R&D
GM Tech Center
Mitsubishi Electric R&D
Mitsubishi R&D
Lotus R&D
Detroit
Ford R&D
Ann Arbor
Toyota R&D
Subaru R&D
Hyundai R&D

Partnerships

- Success requires we all work together
  - VII is not a Michigan program, it is a national program
  - VII has certain requirements from every automaker
- VII and the CICAS program work hand-in-hand

MDOT Testbed Partnerships



MDOT Testbed Vision

- Provide National Leadership
  - Scalable
  - Interoperable
  - Coordinated
- Advance VII technologies and practices
- Enhance the National VII program
- Assure infrastructure investments by MDOT that have long term use beyond VII test bed project

Multi-Phased Approach

- Early Phases - Evaluate alternative technologies
  - Short range wireless technologies to vehicles
  - Connectivity and backhaul technologies
- Later Phases – Interoperability
  - Converge to common, interoperable system among vehicle and infrastructure deployments

Specific VII Testbed Tests

- Identify common data sources and sets
- Test current, stable technologies that can be used for vehicle to roadside communications
- Evaluate different technologies as options for backhaul communications

Evaluating Data Integration

- MDOT / GM Test to Validate Accuracy
- How will probe data change the way MDOT does business?
  - Short term → Augment
  - Long term → Replace

Planned Coverage Areas

- Centered in metropolitan Detroit area
- Multiple phased test beds
  - Phase 1 - On-Campus
  - Phase 2 - Expand to surrounding areas
  - Phase 3 - Connect Local test beds
- Supports the National Test Bed strategy
  - – National Test Bed Phases 1 through 3

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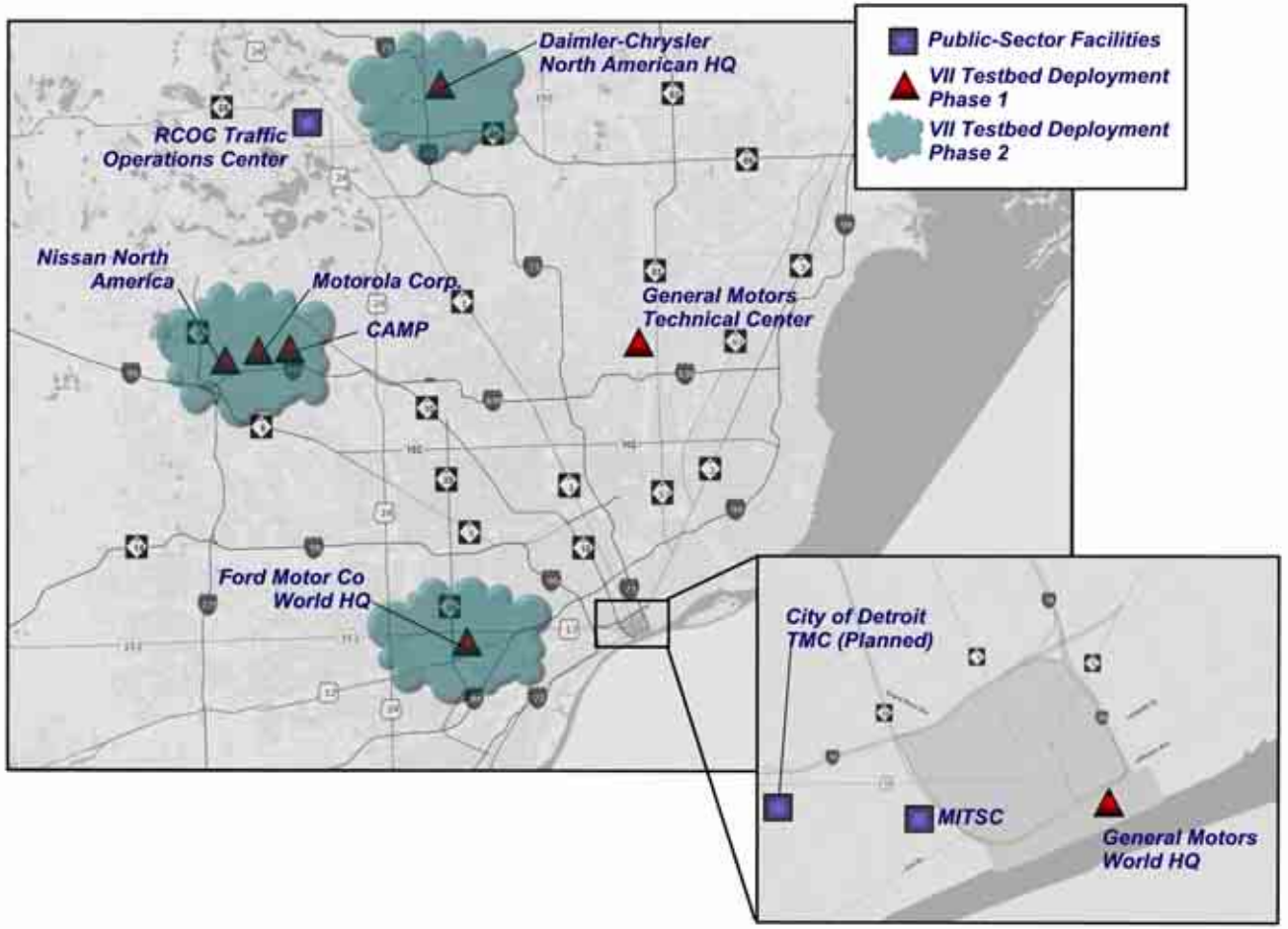
Phases 1 & 2



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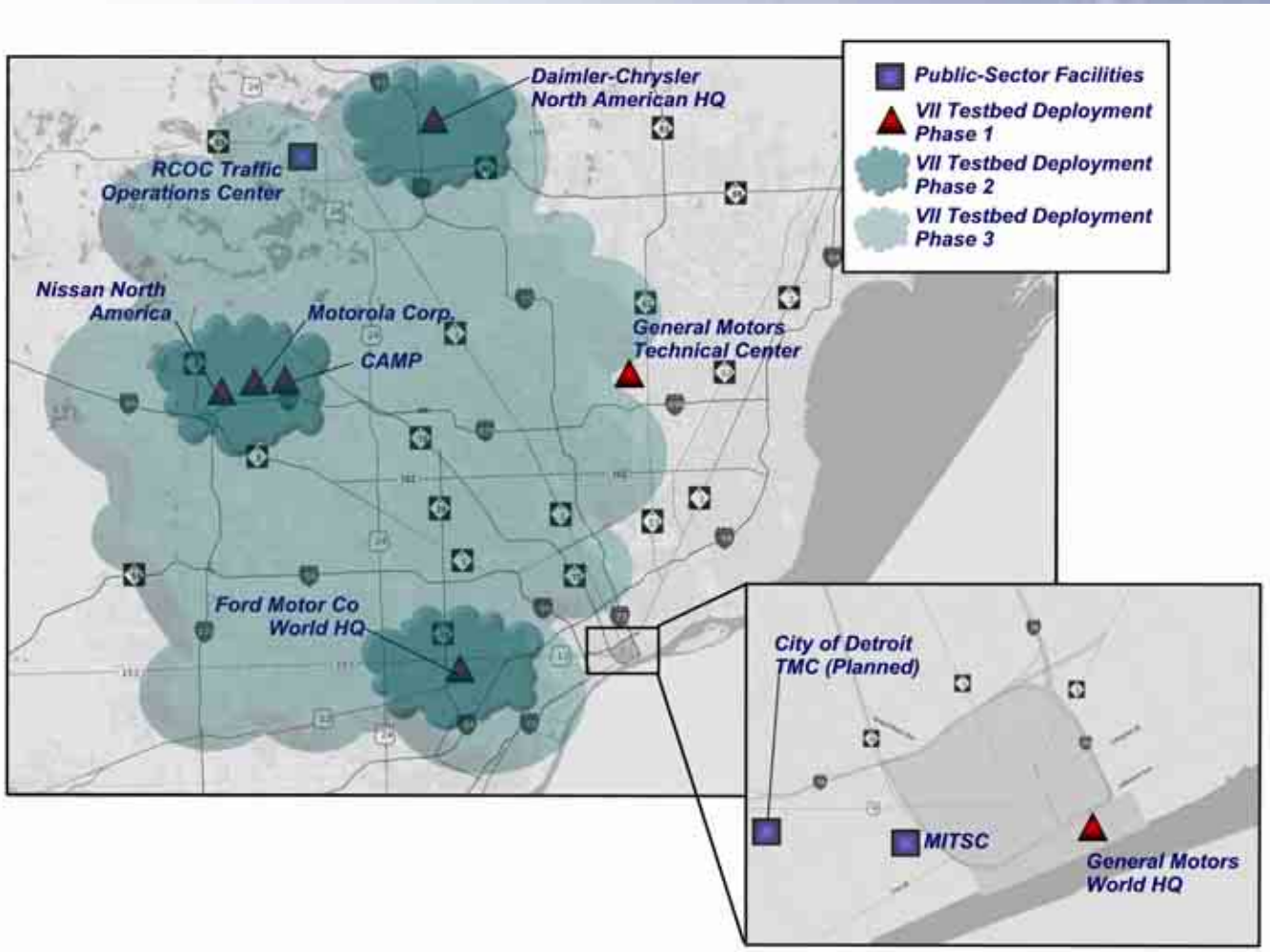
Phase 3



Preliminary Results

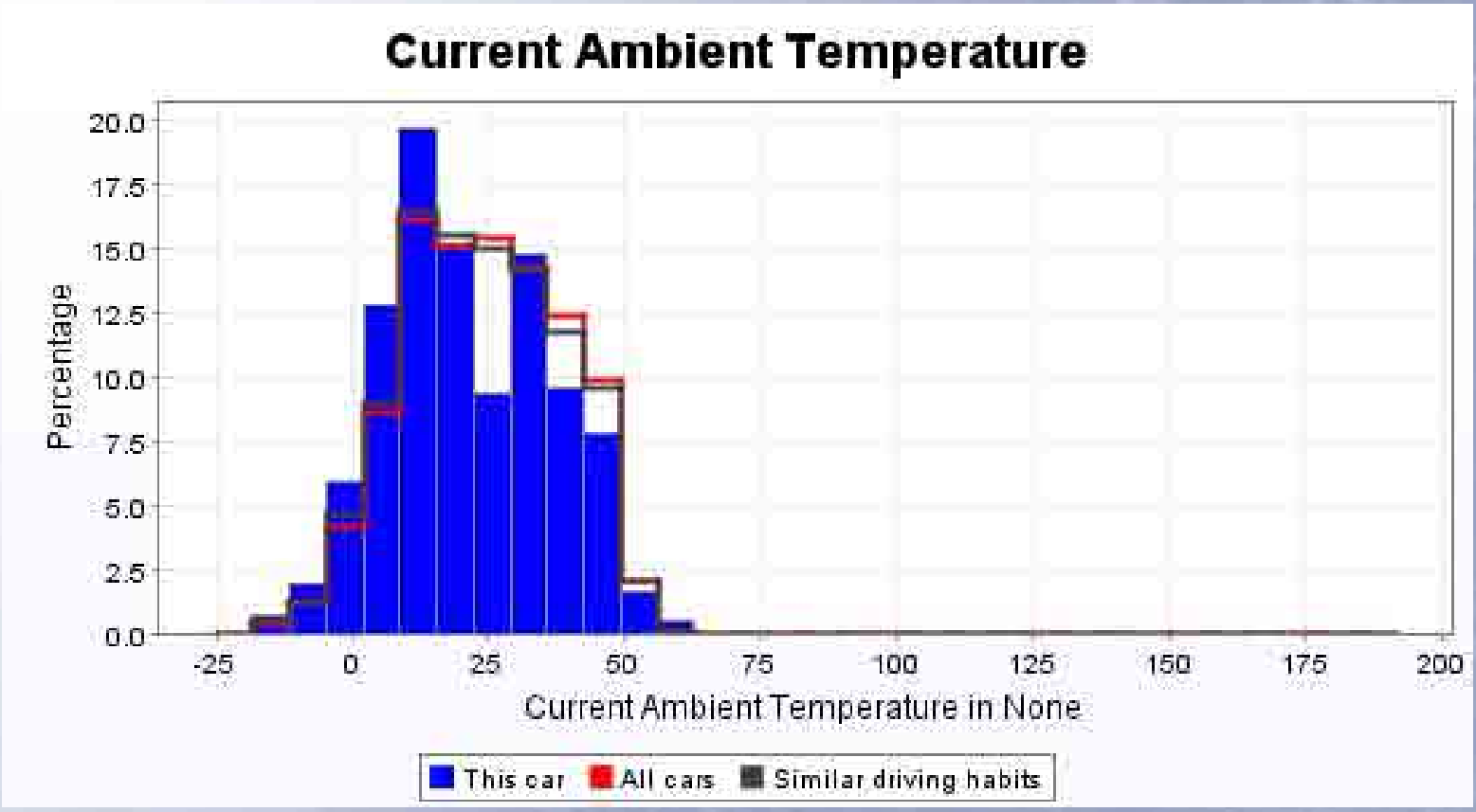
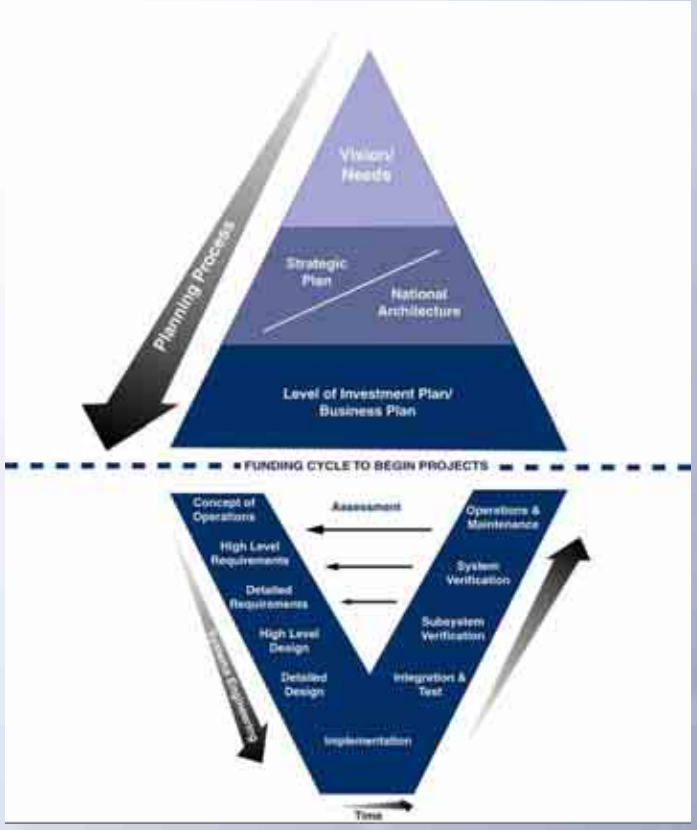


Figure courtesy DaimlerChrysler

Preliminary Results

- Ride Quality Measuring
  - Ability to measure ride quality in real-time
  - Sensitivity high enough to detect bridge joints
- Continuous Internet Connection
  - Demonstrates ability of a wireless network at high (freeway) speeds
  - Use cases could include benefits for transit users

Next Steps



- Develop the State of Michigan VII Strategic Plan
- Develop a Concept of Operations for the Test Bed activities
- Define research program
  - What & how we test
  - How we share results

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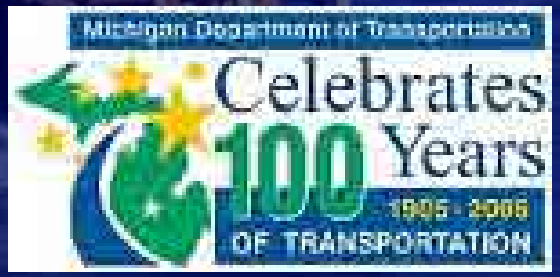

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